

**KEYNOTE ADDRESS BY DATUK AMAR LEO MOGGIE
MINISTER OF ENERGY, COMMUNICATIONS AND MULTIMEDIA,
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AT THE 8TH APEC COAL FLOW SEMINAR/9TH APEC CLEAN FOSSIL
ENERGY TECHNICAL SEMINAR/4TH APEC COAL TRADE, INVESTMENT,
LIBERALISATION AND FACILITATION WORKSHOP**

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It gives me great pleasure to be here with you today and I would like to thank the organizers of these series of APEC Seminars and Workshop on Coal, for inviting me to deliver this keynote address. I note that for the first time the 8th APEC Coal Flow Seminar, the 9th APEC Clean Fossil Energy Technical Seminar and the 4th APEC Trade, Investment, Liberalization and Facilitation Workshop, are being held together. We are delighted that Kuala Lumpur has been given the honor to host these events. On behalf of the Ministry of Energy, Communications and Multimedia I wish a warm welcome to all participants and "Selamat Datang" to our overseas participants.

Today, as most of our economies are recovering from the financial and economic crisis, we can expect resurgence in energy demand. To meet this demand, energy supply infrastructure will need to be continuously developed and being very capital intensive, it will impose tremendous pressure on the natural resources, particularly for developing economies. At the same time, we are aware that the current patterns of growth, resource use and environmental degradation cannot extend indefinitely into the future. Also, we realize that in terms of energy use and supply, we need to encourage the most efficient utilization of resources.

This concern had led to the conclusion, ten years ago in 1992, of Agenda 21, the landmark agreement on key issues and goals of sustainable development. In the later part of this year, heads of governments, international organizations, NGOs and other stakeholders will again be meeting to review the progress in the implementation of this Agenda. Against this background, the selection of the theme of this week's conference, "Coal in Sustainable Development in the 21st Century" is timely. Coal, being the most abundant energy resource and also one of the cheapest, will have to feature markedly in meeting the goals of sustainable development.

It is said that as many as 2 billion people or almost one third of the world's population have no access to modern energy services. Unfortunately, the majority of this 2 billion people live in the Asia-Pacific region. Since energy is crucial in achieving the goals of sustainable development, greater

efforts need to be taken to implement policies, strategies and action programs that will ensure these 2 billion people have access to adequate and affordable energy supply. At the same time, the goals of sustainable development also require that programs to provide greater access of energy supply be implemented with a minimum compromise on environmental quality. This remains as one of the greatest challenges facing us in this new millennium.

TOWARDS A MORE SUSTAINABLE ENERGY MIX

Ladies and Gentlemen,

Malaysia is fortunate to have large domestic energy resources and an established energy infrastructure that supply affordable and reliable energy to a wide variety of consumers, from industry to households. This has been a key factor in the nation's robust economic growth of the last three decades.

Malaysia's energy policy is designed to promote and support the growth and development of its economy in a sustainable manner. Even during the economic crises of 1997, the thrust of Malaysia's energy policies continued to focus on ensuring adequate, secure and cost-effective supply and utilizing the energy resources efficiently, while minimizing its negative impacts on the environment.

A predominant feature of the Malaysian energy supply mix until early 1980s was an extremely high dependence on oil. Realizing this was not sustainable, the Government formulated a National Depletion Policy in 1980 aimed at extending the life of oil reserves by establishing appropriate oil production levels, relative to available reserves. This was complemented a year later by the "Four-Fuel Strategy" aimed at ensuring reliability and security of supply, with a supply mix of oil, gas, hydropower and coal in energy use. As much as possible, local resources of these fuels were used to enhance security of supply. In particular, the electricity sector emphasized the installation of non-oil capacity, while in the cement industry, the conversion of all major cement kilns to dual fuel fired (oil and coal) systems was carried out.

With its discovery in 1983, gas began to make significant contribution primarily in electricity generation, while coal, which was entirely imported then was consumed mainly in the cement and steel industries. In 1985, oil accounted for 61.9 per cent of total primary energy supply, gas 18.1 per cent, hydro 2.9 per cent and coal 2.8 per cent. The success of the diversification policy has reduced the share of crude oil and petroleum products in the total energy supply, accounting for 53.1 per cent in 2000. The share of natural gas increased significantly to 37.1 percent, coal and coke at 5.4 per cent and hydro at 4.4 per cent. Coal and coke grew as a result of increased usage in foundries and cement plants.

The diversification strategy has seen greatest success in the electricity generation sector. The share of oil in electric power generation in 1980 was 87.2 per cent, hydropower 12.5 per cent and gas 0.3 per cent. By 2000, the share of oil in the electric power generation mix declined sharply to a mere 5 per cent, while gas increased significantly to 75 per cent, coal and coke at 10 per cent and hydro power at 10 per cent. The use of coal as an energy source in electricity generation in Malaysia was aimed at ensuring system security and reliability.

The economy's overall energy mix is continuously being reviewed to ensure the long-term reliability and security of energy supply. Concerted efforts are being undertaken to ensure the sustainable development of energy resources, both depletable and renewable, in meeting the energy demand of the economy. The contribution of crude oil and petroleum products is anticipated to decline further to 50.8 per cent by year 2005, while that of natural gas and coal is expected to increase to 39.9 per cent and 5.9 per cent, respectively. At the same time, efforts will be intensified to encourage the utilization of renewable resources for the generation of energy. In this respect, the fuel diversification policy, which comprises oil, gas, hydro and coal, has been extended to include renewable energy resources as the fifth fuel.

ROLE OF COAL IN ENERGY MIX

Ladies and Gentlemen

Coal is mainly consumed by power generation plants and cement manufacturing industries, accounting for 99 per cent of the total coal demand. Production though small, grew from 65,000 tonnes in 1991 to 383,000 tonnes in 2000. Most of the coal produced locally was utilized by the Sejingkat power station in Sarawak with a capacity of 100 megawatts (MW). The total coal requirement of this plant is 300,000 tonnes per annum. Another coal-fired power plant completed was the Phase 3, Kapar power station, with an additional capacity of 1,000 MW. This plant, which utilizes imported coal, will require 2.5 million tonnes per annum.

The electricity industry will play a leading role in increasing utilization of coal for power generation in the coming years, up to 2010. Hence, coal demand for electricity generation in the economy is projected to increase sharply, from an estimated 6.03 million tonnes in 2000 to between 19 to 20 million tonnes per annum by 2010. This is due to the commissioning of new coal-fired electricity generating plants, which will account for 60 per cent of the additional planting up capacity being planned. Up to 2005, 3,800 MW or 43 per cent of new capacity will be coal-fired. Hence, coal will contribute a significant 30.3 per cent to the total fuel mix in electricity generation in 2005, while that of gas will decline to 61 per cent. A more sustainable fuel mix for Malaysia in the longer term will see a greater percentage of coal utilization of between 40-45 percent while that of gas at not more than 50 per cent.

Coal is also used by the cement industry and the iron and steel industry. There are seven integrated cement plants in Peninsular Malaysia and one clinker plant in Sarawak. The consumption of coal by the cement industry in 2000 was 1.83 million tonnes and expected to increase to 2.13 million tonnes per annum by the year 2005. This is due to the higher production from existing plants in response to the greater demand accompanying the nation's economic recovery.

COAL RESOURCES AND ITS POTENTIALS

Coal resources in Malaysia are found mostly in East Malaysia, in the states of Sarawak and Sabah. In 2000, the total reserves of coal was estimated at 1,711.4 million tonnes, of which 275 million tonnes are classified as measured resources, 347 million tonnes as indicated and another 1,090 million tonnes as inferred. About 80 per cent of the reserves are in Sarawak, 19 per cent in Sabah and only 1 per cent in Peninsular Malaysia.

The coal deposits are of various qualities ranging from lignite to anthracite with bituminous to sub-bituminous coal forming the bulk. Unfortunately, most of these known coal areas are located far inland where infrastructure is poor.

Commercial production of coal began in 1991 and by 2000 there were 6 mines in operation. The present coal production in Sarawak comes from the Merit-Pila Coal Field, which produced a total of 291,112 tonnes in 1999 and expected to increase to 600,000 by this year; underground mine at Silantek, producing 15,191 tonnes beginning in 1999; and the Abok Coal field, producing 2,200 tonnes.

The Merit-Pila Coal Field in Sarawak, which is one of the main sources of coal supply in the economy, has coal characterized as having moderate ash content and moisture, very low sulphur and gross calorific values of about 5000 to 6000. This area's estimated reserve is about 385 million tonnes of which 10% may be mined by open cast method.

Another major field is the Mukah-Balingan coalfield, with a reserve at about 270 million tonnes. The coal is of lignite with high moisture, low sulphur, low to moderate ash content and a gross calorific value of about 5000 to 5500 per kg. Due to its high moisture content and low calorific value, the coal from this area is best suited for mine-mouth power plants and for coal briquettes.

The Silantek coal field contains reserve of 60 million tonnes with coal type ranging from bituminous to anthracite and semi-anthracite having low to medium volatiles, low ash, very low sulphur and a high gross calorific value of about 7000 to 8000 per kg. Some of the coal from this area has good coking properties.

The Bintulu coalfield is estimated to have a reserve at 20 million tonnes of low ash and a high gross calorific value of 7000 to 7500 per kg. Due to its high heating value and close proximity to a deep-sea port, this coalfield offers great potential for further development.

In addition to the ones mentioned earlier, coal is known to exist in other parts of the remote interior of Sarawak. But to date, no attempt has been made to assess the coal potential of these areas in detail.

In the state of Sabah, coal is known to occur at several places, including the Maliau and Malibau basins in south-central Sabah and the Silimpopon and Labuan areas. Maliau coalfield has shown great potential, having good quality coal and an inferred reserve of 215 million tonnes. However, this area has been gazetted as Maliau Basin Conservation Area in 1998 by the Sabah State Government. Malibau coalfields have a reserve of 26 million tonnes and Silimpopon 14 million tonnes with potential for underground mining.

Generally, the coal reserves in Malaysia have heat values ranging between 5,000 to 7,000 kcal/kg, with low ash and sulphur levels. In view of the high demand for coal in electricity generation and cement manufacture, exploration and assessment of coal resources will need to be stepped up with greater participation from the private sector, particularly in Sabah and Sarawak. However, Malaysia will continue to be dependent on imports to meet its coal requirement. Currently, about 90 per cent of the economy's coal requirements are being met by imports, mainly from Australia, Indonesia, China and South Africa. Coal imports are expected to increase further to 95 per cent by the year 2010.

CHALLENGES FACING COAL UTILISATION

Ladies and Gentlemen,

Because of its abundance and stable price, coal has been and will continue to be an essential component of long-term sustainable economic development, not only in the Asia Pacific region but also the world. Nevertheless, its wider utilization faces several major challenges.

Locally, although Malaysia's coal resource is substantial and sufficient to meet its requirement, a major constraint is the high development cost as coal deposits are located in the interior areas without proper infrastructure. The development of infrastructure to transport coal is costly and most of the coalfields require underground mining, which is more costly compared to surface mining. In addition, the local coal industry faces stiff competition from other economies with bigger reserves and more established coal industry.

With the implementation of the National Mineral Policy, the private sector will be encouraged to play a key role in the development of coal resources in the economy, through greater involvement in exploration, development and production activities. They will be encouraged to take advantage of new technologies that increase productivity. The most promising include improvements in underground mining methods, the use of larger equipment in surface mining operations, and computerization of the administrative and mine maintenance activities.

Globally, the energy industry is undergoing a transformation driven by changes such as deregulation of electricity supply industry, more stringent environmental standards and regulations, climate change concerns, and other market forces. All these developments present a variety of challenges and opportunities to the coal industry.

The Kyoto Protocol implications on Climate Change will have profound impacts on the future of the coal industry and represents a major challenge facing the coal industry, in particular the power sector. In 1997, it was reported that CO₂ emissions from the energy sector had exceeded the goal established at Kyoto by 16%. By about 2010, it has been estimated that carbon emissions could exceed the goal by more than 35%. There is fear that technological development and market mechanisms required to meet this challenge may not be fast enough.

For the region's economic growth and energy security, the coal industry must respond to the environment and greenhouse challenges. The environmental problems associated with coal must be closely examined to find new ways to address these problems. We are pleased to learn of the technological advances achieved in making coal a much cleaner fuel today. In particular, significant increases in thermal efficiency and reductions in sulphur and nitrogen oxides and particulate emissions. With the right technology, the process of coal extraction, movement and more efficient combustion system, will help to reduce the environmental concerns associated with the use of fossil fuel for producing electricity and transportation fuels.

Malaysia remains committed to the goals of sustainable development and measures will be taken to ensure that the production and utilization of coal will meet environmental standards. Clean-coal technology, which will include among others, electrostatic precipitators and flue gas desulphurization for emission control, will be utilized in the new plants to ensure environmental standards are met.

Developed economies will need to lead the way in addressing global environmental problems such as greenhouse. At the same time, the transfer to developing economies of cost effective measures to address environmental impacts through international cooperation is imperative.

Community attitudes to coal use is another major challenge facing the industry and this, more often than not, is founded on their general lack of knowledge and understanding that coal can be used cleanly and efficiently. The negative image of coal must be addressed to gain wider community acceptance to its use. This is of special importance to Malaysia as more and more power plants will be coal-fired. I'm pleased to note that the next few day's deliberations will also touch on developing mechanisms to address the coal's poor image.

In this respect, the APEC Coal seminar and workshop will be an important forum to contribute, learn and exchange ideas and experiences on sustainable development of energy resources, namely coal. I welcome the broad range of topics to be deliberated upon over the next 5 days aimed at improving regional understanding and addressing issues and challenges facing development, trade, and investment within the coal and coal-based energy industries in the APEC region as a whole.

Finally, I wish you every success with these series of APEC Coal Seminar and Workshop.

Thank you.